An Overview of ARB's Stationary Engine Emissions Control Plan

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Air Resources Board

What I’m going to discuss:

- Approach to Controlling Emissions
  - Non-Regulatory (NOx)
  - Regulatory (PM)
- Typical NOx Controls for SI Engines
- Diesel RACT/BARCT
- Diesel Risk Reduction Plan

Approach to Emissions Control for Stationary Engines

- RACT/BARCT Determination
  - Non-Regulatory Guidance for Districts
  - Split into Spark-Ignited (SI) & Diesel-Fueled
  - Addresses Existing Engines (retrofit controls)
  - Emphasizes NOx Control
- Diesel PM ATCMs
  - Statewide Control Measures in Development
  - Listed as TAC August 1998
  - Risk Reduction Plan Approved September 2000
  - Will Address New and Existing Engines

Examples of Engine Applications

- Electrical Power Generation
  - Prime Power
  - Emergency/Standby Power
- Pumps
  - Agricultural Irrigation
- Compressors
  - Natural Gas Pipelines

Typical NOx Controls
-SI RACT/BARCT-

Engine Type	Controls	NOx Reductions
Rich Burn	3-Way Catalyst (NSCR)	> 90% reduction
	Prestratified Charge	> 80% reduction
Lean Burn	Low-Emission Combustion	> 80% reduction
	Selective Catalytic Reduction	80 to 90% reduction

RACT/BARCT Determination for Diesel-Fueled Engines

- In the Development Stages
- Similar to Determination for SI Engines
- NOx Emissions estimated to be greater then 10,000 tons/year for Stationary Diesels
- Coordinate Effort with ATCMs for Diesel-Fueled Engines
    - PM vs. NOx Trade-off in Combustion Process

The Diesel Risk Reduction Plan

- Reduce emissions from *new* and *existing* portable, and stationary engines
  - retrofit where economically reasonable
- Provide very low-sulfur diesel fuel (<15ppm) for diesel traps
- Undertake demonstration programs; develop incentive programs
- Work with stakeholders and International Retrofit Advisory Committee

Engine Types Subject to Diesel PM ATCMs

- New and Existing
- Stationary
  - Emergency/Standby
  - Prime Power
  - Agricultural
- Mobile
  - On-Road
  - Off-Road
    - Includes portable

Emission Controls for Diesel PM

- Effective PM Controls are Available:
  - Diesel traps may prove to be effective for new and existing engines
  - Oxidation Catalysts for Older Engines
  - Other Options:
    - Engine modifications
    - Alternative diesel formulations/additives
    - Alternative fuels (CNG, LNG, LPG, dual-fuel)
    - Electrification

Guidance for Permitting New Stationary Diesel-Fueled Engines

- Performance Standard or Minimum Technology Requirement to Reduce Diesel PM
- Meet Current NOx Emission Standards for New Diesel-Fueled Engines

Demonstration Programs

- BP Amoco Tanker Truck Demonstration (DPF)
- CalTrans Green Fleet Demonstration (In Planning)
- Hertz Equipment Rental (DPF)
- Los Angeles City Sanitation (DPF)
- Ralph's Grocery Class 8 Trucks (DPF)
- SCAQMD School Bus Demonstration (DPF)
- San Diego School District (DPF)
- ARCO Emission Control Diesel (Low-Sulfur Fuel)
- Stationary Gen-Set Demonstration (DPF)